HUMAN FACTORS: "Top 10" topics

Human factors is often defined by ten key topics (the "Top 10"). These were developed following analysis of what companies with a good safety performance tend to manage well, and the topics which often contribute to incident causation.

Optimising human performance (risk assessment & investigations)

Predicting how people may fail (unintentional errors & intentional behaviours) & addressing the influences. Undertaken in a structured and proactive way, with as much rigour as a review of the hardware aspects. Risk assessments need to recognise the limits of what humans can and can't do and take into account the impact of People, Work and Organisational factors when deciding on control measures. Incident investigations need to establish the conditions that allowed (or encouraged) human failures to occur.

Organisational change

Organisational change (e.g. staffing levels, use of contractors or outsourcing, combining departments, delayering, changes to roles, responsibilities or reporting) can have direct and indirect effects on the control of hazards. Organisational changes need to be planned and assessed in a structured manner.

Supervision

All key supervisory functions should be clearly defined and allocated to supervisors who have the time and ability to undertake these functions effectively. Supervision includes planning and allocating work, making decisions, monitoring performance and compliance, coaching, mentoring, oversight of risk assessment/permits, providing leadership, building teamwork, ensuring workforce involvement, and managing contractors.

Staffing levels / workload

Having the right numbers of the right people, in the right place at the right time. Excess workload can result in slower task performance and errors such as slips, lapses or mistakes. Underload can also lead to human performance issues such as boredom, loss of situation awareness and reduced alertness.

Fatigue

Issues that arise from excessive working time or poorly designed shift patterns. Fatigue can lead to errors, slower reaction times, reduced ability to process information, memory lapses, absent-mindedness, and losing attention. Fatigue needs to be managed, like any other hazard. There is little point in being competent, if we're too tired.

Human factors in design (Human Factors Engineering)

The design of workplaces, interfaces, tools and equipment can have a significant impact on human performance. The work environment (lighting, thermal comfort, working space, noise and vibration) also impacts performance. Designing tasks, equipment, processes and the work environment to suit the user can reduce human failure, accidents and ill-health; whilst also improving productivity and reducing downtime.

Training and competence

Competence assurance is more than just training. Competence should be linked to key responsibilities, activities and tasks identified in risk assessments – for all those involved in safety-related work, including managers and office-based engineers. Even the most experienced and competent individuals can make mistakes.

Procedures

Procedures include method statements, work instructions, checklists, diagrams, permits to work etc. Incomplete, incorrect, unclear or outdated procedures can lead to short cuts and unintentional errors. Procedures should be managed, and use a format, style and level of detail appropriate to the user, task and consequences of failure.

Safety critical communications

Includes communications between team members, across shifts, between different teams or departments, and emergency communications. Also includes safety information. The method of communication (e.g. written, verbal, face-to-face), language, timing and content are important factors contributing to effective communication. The Permit-to-Work system plays a critical role.

Organisational / safety culture

Poor safety culture has contributed to many major incidents. The culture of management is significant, for example an unconscious bias for production or schedule over safety, a tendency to focus on the short-term and being highly reactive. Success comes from leadership, involvement, communications and learning.